

REMARKS

Applicants respectfully requests reconsideration of the above referenced patent application in view of the amendments and remarks set forth herein, and respectfully request that the Examiner withdraw all rejections. Claims 22, 26, 28, 32-34 and 37 have been amended. Claims 23-25, 29-31, 35 and 36 have been canceled without prejudice. No claims have been added. Thus, claims 22, 26-28, 32-34, 37 and 38 are pending.

35 U.S.C. §101 Rejections

The Office Action rejects claims 28-33 under 35 U.S.C. §101 as being directed toward non-statutory matter. More particularly, the Office Action alleges that the machine readable medium recited in the claims is directed to carrier waves. Claims 29-31 have been canceled without prejudice, rendering moot the above rejection as applied thereto. For at least the following reasons, Applicants traverse the above rejection as applied to pending claims 28 and 32.

Without agreeing to the alleged non-statutory nature of the claims, and in order to advance prosecution of the application, Applicants amend paragraph [0027] of the specification to remove references to carrier waves. Furthermore, the claims are amended herein to recite a computer readable “storage” medium. Applicants respectfully submit that the claims as amended are directed to statutory subject matter. Accordingly, Applicants request that the above 35 U.S.C. §101 rejection of claims 28 and 32 be withdrawn.

35 U.S.C. §112 Rejections

Rejections under 35 U.S.C. §112, ¶1

The Office Action rejects claims 22-38 under 35 U.S.C. §112, ¶1 for failure to meet the written description requirement. More particularly, the Office Action alleges that “determining threshold number,” “determining a threshold period of time,” “determining a threshold quantity of memory space,” “determining a second threshold number” and “determining a second

threshold period of time," as recited in the claims, are not described in the specification. Claims 23-25, 29-31, 35 and 36 have been canceled without prejudice, rendering moot the above rejection as applied thereto. For at least the following reasons, Applicants traverse the above rejection as applied to pending claims 22, 26-28, 32-34, 37 and 38.

Without agreeing to any alleged failure to meet the written description requirement, and in order to advance prosecution of the application, Applicants amend the claims herein to remove the various claim limitations alleged in the Office Action to have not been described in the specification. Applicants submit that the claims as amended only contain subject matter which is described in the specification in such a way as to reasonably convey to one skilled in the relevant art that Applicants, at the time the application was filed, had possession of the claimed invention. For at least the foregoing reasons, Applicants request that the above 35 U.S.C. §112, ¶1 rejection of claims 22, 26-28, 32-34, 37 and 38 be withdrawn.

35 U.S.C. §102 Rejections

35 U.S.C. §102 (e) Rejection over Coulson

The Office Action rejects claims 22-38 under 35 U.S.C. §102(e) as being anticipated by Coulson, U.S. PG Publication 2003/0074524 A1 (*Coulson*). A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference, wherein the identical invention is shown in as complete detail as is contained in the claim. *See M.P.E.P. §2131*. The Office Action alleges that *Coulson* discloses, *inter alia*, changing a power state of the HD based at least in part on threshold number and a threshold period of time. Claims 23-25, 29-31, 35 and 36 have been canceled without prejudice, rendering moot the above rejection as applied thereto. For at least the following reasons, Applicants traverse the above rejection as applied to pending claims 22, 26-28, 32-34, 37 and 38.

The pending rejected claims include independent claims 22, 28 and 34. Independent claim 22 is amended herein to recite in a salient portion (emphasis added):

“...making a **first determination** whether a number of previous consecutive reads of a hard drive (HD) satisfied by a non-volatile cache (NVC) of the HD is greater than or equal to a **previously determined number**;

making a **second determination** whether a period of time of previous consecutive HD reads satisfied by the NVC of the HD is greater than or equal to a **previously determined period of time**;...”

Each of currently amended independent claims 28 and 34 includes similar claim limitations. The amendments are supported in the original disclosure at least by the discussion of FIG. 4 in paragraphs [0018]-[0019] of the original specification. FIG. 4 discloses a determination 402 whether a predetermined – i.e. determined before 402 – number of HD reads have been serviced by the NVC. FIG. 4 also discloses a determination 404 whether, in a predetermined – i.e. determined before 404 – period of time, HD reads were serviced by the NVC. Applicants amend the claims to more particularly indicate that the **previously determined** number and period of time were each determined previous to their respective use in 402 and 404 of FIG. 4. One of ordinary skill in the art would appreciate that determinations 402 and 404 of FIG. 4 are made, respectively, based on a number and a period of time which were determined, respectively, previous to determinations 402 and 404 being made.

Applicants respectfully submit that each of claims 22, 26-28, 32-34, 37 and 38 is not anticipated by *Coulson*, based at least on the failure of the reference to teach one or more limitations in each of independent claims 22, 28 and 34. More particularly, *Coulson* fails to disclose the first and second determinations variously recited in the claims. Applicants note that the first and second determinations of the claims are made with regard to a number and a period of time, respectively, which are each **previously determined** – i.e. determined **previous** to when the first and second determinations, respectively, are made. The Office Action variously argues that (1) a threshold number is established once a determination is made whether to have the cache or the HD service a request, and (2) a threshold period of time is determined based on the time the cache can no longer successfully satisfy the commands. Applicants are confused as to the meaning and relevance of these comments in the Office Action, and argue below that no such previously determined number and/or period of time are ever **determined** in *Coulson*, nor is any such number and/or period of time used for spinning down a HD in the manner set forth in the claims.

Regarding a previously determined number, paragraphs [0020]-[0021] of *Coulson* merely disclose the cache satisfying a request if it is able to. Specifically, read requests are serviced by the cache until a read miss, wherein a particular read request is for data which can only be retrieved from disk memory. *See*, e.g., paragraph [0023]. However, the mere fact that when a read operation in *Coulson* cannot be satisfied by the cache, there incidentally may, in the abstract, be a quantity of previous consecutive reads which were satisfied by the cache, does not mean that that quantity is determined in *Coulson*. In other words, it is irrelevant that *Coulson* could, theoretically, determine a quantity of previous consecutive reads which were satisfied by the cache, once a “last” such read occurred. *Coulson* fails to disclose performing such a determining, either explicitly or inherently, as required to satisfy the requirements for anticipation per M.P.E.P. §2131. More to the point, *Coulson* fails to disclose any such determined number being compared to a previously determined number, as per the “first determination” variously recited in the claims.

Similarly with the previously determined time, the mere fact that, at a time in *Coulson* when the cache can no longer successfully satisfy commands, there incidentally may, in the abstract, be a period of time of previous consecutive disk reads satisfied by the cache, does not mean that that period of time is determined in *Coulson*. In other words, it is irrelevant that *Coulson* could, theoretically, determine a period of time of previous consecutive disk reads satisfied by the cache, once a “last” such read occurred. *Coulson* fails to disclose performing such a determining, either explicitly or inherently, as required to satisfy the requirements for anticipation per M.P.E.P. §2131. More to the point, *Coulson* fails to disclose any such determined period of time being compared to a previously determined period of time, as per the “second determination” variously recited in the claims.

Assuming arguendo that *Coulson* discloses the previously determined number and period of time recited in the claims, which Applicants do not agree, *Coulson* further fails to disclose the manner of spinning down the HD variously recited in the claims. Currently amended claim 22 states in a salient portion (emphasis added):

“...where the third determination is true and where at least one of the first determination and the second determination is also true,

spinning down the HD,...”

Applicants note that the only connection disclosed in *Coulson* between disk access and a change of disk spinning is in paragraph [0035], which states in a salient portion (emphasis added):

“Therefore, after a memory access request occurs that requires the hard disk to be spun up, the hard disk will **more than likely** be spun down in **an aggressive manner** to maximize power conservation.”

Coulson fails to provide any details of the above-cited “aggressive manner” of spinning down a hard disk. In fact, *Coulson* fails to provide the conditions in which this “aggressive manner” of disk spin down would take place, saying instead that it is **merely** “more than likely”. Applicants submit that insofar as *Coulson* **fails** to describe this “aggressive manner” of disk spin down in any detail, and insofar as any described “aggressive manner” is merely “more than likely” to happen, *Coulson* **fails** to disclose spinning down a HD where the third determination is true and where at least one of the first determination and the second determination is also true. Therefore, *Coulson* fails to meet the requirement in M.P.E.P. §2131 that a single prior art reference **expressly or inherently** describe Applicants’ invention **in as complete detail** as set forth in the claims.

For at least the foregoing reasons, *Coulson* fails to disclose at least one element in each of independent claims 22, 28 and 34. In depending directly or indirectly from one of these independent claims, each of dependent claims 26-27, 32-33, 37 and 38 incorporates at least one limitation not taught by the reference. Therefore, Applicants request that the above 35 U.S.C. §102(e) rejection of claims 22, 26-28, 32-34, 37 and 38 based on *Coulson* be withdrawn.

CONCLUSION

For at least the foregoing reasons, Applicants submit that the rejections of the Office Action are moot. Furthermore, claims 22, 26-28, 32-34, 37 and 38 are in condition for allowance and such action is earnestly solicited. The Examiner is respectfully requested to contact the undersigned by telephone if such contact would further the examination of the present application. Please charge any shortages and credit any overcharges to our Deposit Account No. 02-2666.

Respectfully submitted,
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